JOURNAL OF RESEARCH IN PERSONALITY **28**, 481–491 (1994)

Emotionality Differences between Artists and Scientists

KENNON M. SHELDON

University of California, Davis

Advanced art and science students were compared on measures of emotionality and subjective well-being. Consistent with traditional findings, artists were found to experience more frequent negative affectivity, more anxiety symptoms, and more global symptomology. Artists were also higher in affect intensity, were no different from scientists in life satisfaction or positive affect, and listed fewer strivings to contain or control emotional experience. Results are discussed in terms of affect-intensity and arousal regulation theory (Diener and Larsen, 1987). © 1994 Academic Press, Inc.

Past research has demonstrated that artists often experience negative emotions, especially anxiety (Barron, 1963, 1969; Cross, Cattell, & Butcher, 1967; Drevdahl & Cattell, 1958; Taft, 1958). Artists also show elevated emotional sensitivity and instability (Drevdahl, 1956; Eiduson, 1958) and give indication of high trait neuroticism (Cross, Cattell, & Butcher, 1967). In contrast, scientists have been found to be less susceptible to negative emotions and more emotionally stable, relative to artists or population norms (Cattell, 1963; Cattell & Drevdahl, 1955; Drevdahl, 1956; Eiduson, 1962).

These profiles suggest that artists and scientists are quite different, emotionally, and indicate that artists may in some ways be less psychologically healthy than scientists. However, the profiles are unreflective of many important distinctions which have emerged in modern emotionality research and are thus incomplete. In order to shed new light on the relative psychological health of the two groups, the present study compared advanced art and science students using a full spectrum of emotionality and well-being measures. This project was deemed worthwhile both because it builds upon a long-standing research tradition and because scientific and artistic vocations nicely represent basic dichotomies of cognitive and

---

Address correspondence and reprint requests to Ken Sheldon, Dept. of Psychology, University of Rochester, Rochester, NY 14627.

0092-6566/94 $6.00

Copyright © 1994 by Academic Press, Inc.
All rights of reproduction in any form reserved.

personal style (i.e. rational vs intuitive, apollonian vs dionysian, or analytic vs synthetic; Feist, 1991; Storr, 1983).

Chronic anxiety and neuroticism, the variables which tended to distinguish artists and scientists in previous research, are good indicators of what is now referred to as trait negative affectivity (Watson & Clark, 1984; Watson & Pennebaker, 1989). However, none of the research cited above considered trait positive affectivity. This gap in the artist/scientist picture is significant, because research has demonstrated that positive affectivity is an independent component of subjective well-being (Diener & Emmons, 1984; Watson, 1988). Accordingly, subjects were given the PANAS (Watson, Clark, & Tellegen, 1988), which assesses how frequently people experience both positive and negative emotional states. In accordance with past findings, it was expected that artists would report more frequent negative affect than scientists. No predictions were made for positive affect.

In addition, subjects were given the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Life satisfaction is assumed to result from a global assessment of the quality of one's life, and represents a third major aspect of subjective well-being along with negative and positive affect (Andrews & Withey, 1976; Diener, 1984). No predictions were made regarding life satisfaction.

Another indicator of well-being and emotionality is the relative presence or absence of psychopathological symptoms. Thus, subjects completed the Brief Symptom Inventory (DeRogatis & Melisaratos, 1983), which assesses a wide spectrum of psychosymptomology. Because previous findings indicate that artists are prone to neuroticism (Cross, Cattell, & Butcher, 1967), it was predicted that in the current study, they would be higher than scientists on both the anxiety subscale and on global symptomology.

Another important dimension of emotionality is affect intensity, which refers to how strongly one responds to a given level of emotion-provoking stimulation. Diener and Larsen (1987) and their colleagues have shown that affect intensity is a stable individual difference variable that characterizes both positive and negative affective experience. Affectively intense persons are more emotionally reactive and show greater emotional variability over the course of daily life (Diener & Larsen, 1987; Larsen, Diener, & Emmons, 1986). Because past research suggests that artists tend to be more emotionally sensitive and unstable than scientists, there is reason to believe that they may be more affectively intense than scientists. To substantiate this prediction, the Affect Intensity Measure (Larsen, 1984) was included in the assessment packet.

A desirable feature of the affect-intensity construct is that it offers an indirect link to temperament. Diener and Larsen (1987) argue and give evidence to support that affect intensity plays a compensatory role with regard to baseline arousal. Persons who are underaroused at baseline may react in extreme ways to emotion-provoking events, as one way of increasing baseline arousal. In contrast, those overaroused at baseline may compensate by dampening their reactions to emotional stimulation. If artists are more affectively intense than scientists (as expected), it would suggest that artists have a greater inherent *need* for emotional stimulation. Thus, past findings that artists experience frequent negative affect may in part reflect differences in the temperament and baseline arousal of those who choose artistic vs scientific vocations.

To examine the idea that negative emotions may to some extent be useful to artists, it seemed desirable to examine subjects' motivations regarding emotional experience. The "personal striving" construct (Emmons, 1986; 1989) was selected for this purpose. If negative or intense emotional experiences indeed play a greater functional role in the lives of artists than of scientists, then artists should list fewer strivings to suppress or control emotional experience, while scientists should give more. This hypothesis contradicts what might be expected without the functional perspective, namely, that those who experience frequent negative emotions should be *more* motivated to reduce or control their emotional experience, not *less*.

Because all of the measures used in this study are self-report, results might be colored by response sets. To help rule out the possibility that the artist/scientist differences are due to self-presentational biases, the Marlowe–Crowne Social Desirability Scale (Crowne & Marlowe, 1964) was employed. It was also important to examine the possibility that scientists report less negative affect than artists only because they deny experiencing negative emotion. Thus, I planned to examine Marlowe–Crowne scores in conjunction with subjects' reported levels of anxiety, in order to derive a measure of repressive coping. The logic of the measure is that those who report little anxiety yet are also manifestly defensive are most likely to deal with negative emotions by denying them (Weinberger, 1990). Because there is no previous indication that artists and scientists differ in self-deceptive tendencies, no difference was expected between the artist and scientist groups in either social desirability or repressive coping.

In sum, subjects completed measures of trait positive and negative affect, affect intensity, and life-satisfaction. They also completed an inventory of psychosymptomology and generated "personal strivings" which were coded for themes of emotional containment. Finally, measures of social desirability and repressive coping tendencies were included. According with past findings, it was expected that artists would report more frequent negative affect, anxiety, and global symptomology. Furthermore, it was hypothesized that artists would be more affectively intense than scientists and would list fewer strivings for emotional containment.

METHOD

Subjects and Procedure

Graduate students in the physics and ecology departments of the University of California, Davis, were telephoned randomly from student lists. They were offered $10 if they participated in the research. Of those contacted, 78% agreed to participate and were sent the assessment materials through intracampus mail. Eighty-two percent of those contacted eventually completed and returned the assessment materials; 20 ecology students (8 males and 12 females) and 15 physics students (12 males and 3 females). All were at least 2nd-year students.

Art students from the Academy of Art College in San Francisco were also recruited for the study. The Academy offers intensive training in various commercial arts such as design, illustration, and graphics technology and also fine arts. Undergraduates from this selective and prestigious institution were assumed to be comparable, in level of talent and vocational commitment, to graduate students at UCD; commercial artists do not commonly pursue graduate education, whereas of course, graduate training is virtually a prerequisite for the career of scientific researcher. Notices soliciting subjects were posted in public buildings at the Academy, which also offered subjects $10 for their participation. Respondents to these announcements were sent the assessment materials through the mail. Eighty-six percent of respondents completed and returned the assessment materials for a total sample of 19 art students (5 males and 14 females).

Measures

Positive and negative affect. The PANAS (Watson, Clark, & Tellegen, 1988) consists of 10 positive and 10 negative emotion adjectives. For each adjective, subjects were asked to rate "to what extent you generally feel this way, on average" using a scale ranging from 1 (not at all) to 5 (extremely). Watson et al. (1988) showed that asking subjects to estimate "to what extent" they felt emotions yielded nearly identical results as asking them "how frequently" they felt emotions. Based on their preference, the former format was chosen. Ratings were summed separately for positive and negative adjectives to yield trait measures of *negative affect* (M = 22.7, SD = 6.8, α = .87) and *positive affect* (M = 33.0, SD = 4.7, α = .70).

Affect intensity measure (AIM; Diener & Larsen, 1987; Larsen, 1984). This 40-item measure has statements describing either mild or strong reactions to various situations (reactions express both positive and negative emotions). Subjects rated how often they react to the given situation in the way depicted, using a scale ranging from 1 (never) to 6 (always). After appropriate recoding, an *affect intensity* score was created by taking the average of the 40 items (M = 3.56, SD = .52, α = .90). Larsen, Diener, and Emmons (1986) showed that the AIM strongly predicts mood intensity and reactivity during the course of daily life.

Satisfaction with life scale (Diener, Emmons, Larsen, & Griffin (1985). This 5-item scale has items such as "in most ways my life is close to my ideal." Subjects rated how well each item characterized them, using a scale ranging from 1 (strongly disagree) to 7 (strongly agree). Pavot, Diener, Colvin, and Sandvik (1991) have recently provided extensive validational information for this scale. The 5 items were summed to create an index of *life satisfaction* (M = 21.0, SD = 6.4, α = .76).

Brief symptom inventory (DeRogatis & Melisaratos, 1983). This 53-item measure asks subjects to rate how much they were discomforted by various symptoms during the past week, using a scale ranging from 1 (not at all) to 5 (extremely). Of interest for this study were the anxiety subscale (6 items) and global symptom severity (53 items). Scores were computed by taking the average across the relevant items (for *anxiety*, M = .85, SD = .64, α = .76; for *global symptom severity*, M = .84, SD = .53, α = .95).

Marlowe-Crowne social desirability scale (Crowne & Marlowe, 1964). Subjects answered true or false to each of the 33 items of this often-used scale. After appropriate recodings, a single index was formed for each subject by counting the number of "false" responses (*social desirability;* M = 12.5, SD = 5.4). A *repressive coping* measure (Weinberger, 1990) was also created by subtracting subjects' anxiety scores from their social desirability scores (after first standardizing both variables). This measure indexes the discrepancy between subjects' concern for appearances (defensiveness) and their reported anxiety (M = .03, SD = 1.55); high scores indicate high repressive coping.

Personal strivings (Emmons, 1986). Subjects generated at least 10 personal strivings, defined as "what you are typically and characteristically trying to do in life" (see Emmons, 1989 for a discussion of the striving construct). Subjects who generated more than ten strivings were asked to identify the 10 "most characteristic" ones.

Later, two advanced undergraduates blind to the hypotheses of the study content-coded each subject's 10 strivings. The "emotional containment" category encompassed strivings intended to reduce or regulate emotional experience, especially negative emotional experience. There were three subcategories. First, strivings could refer specifically to avoiding intense experience, either directly ("stay uninvolved emotionally") or indirectly via avoidance of interpersonal conflicts ("Avoid conflicts with others"), or via attempts to manage stress ("Not let work stress me out"). The second subcategory included strivings to avoid negative emotional experience (e.g., "Not let things bother me as much as possible," "Suppress my violent feelings," or "Stay away from situations that make me feel angry or frustrated"). The third subcategory involved specific strategies for containing intensity, such as trying to stay organized, trying to maintain balances in life or trying to maintain a detached perspective (e.g., "keep things in perspective," "act rationally," "don't take myself too seriously," or "balance work and family life"). All of the above examples are actual strivings given by scientists. For each rater and subject, a count of the number of emotional containment strivings was made. The correlation between the two raters was .72. Disagreements between raters were discussed until consensus was reached; according to this consensus, subjects gave a mean of 1.85 *emotional containment* strivings (out of 10), with a standard deviation of 1.34 and a range from 0 to 5.

RESULTS

Table 1 presents the intercorrelations of the emotionality variables. As can be seen, negative affect, anxiety, and global symptom severity were significantly intercorrelated. Affect intensity was positively related to these three negative well-being variables as well as with positive affect, but was unrelated to life satisfaction. Life satisfaction was positively correlated with positive affect and negatively correlated with negative affect and global symptom severity. Thus belying some past research, life satisfaction (Andrews & Withey, 1976) and affect intensity (Larsen & Diener, 1985) were not independent of positive and negative affect. However, positive and negative affect were independent of one another (Diener & Emmons, 1984).

Table 2 presents the means for the artists and scientists on all variables.

TABLE 1
INTERCORRELATIONS AMONG EMOTIONALITY MEASURES

	NA	PA	SWL	AI	ANX	GLOBSYM
Negative affect	—					
Positive affect	.10	—				
Satisfaction with life	−.42	.37	—			
Affect intensity	.51	.29	−.03	—		
BSI anxiety	.61	.10	−.18	.34	—	
BSI global symptom severity	.61	.05	−.35	.31	.79	—

Note. Correlations of .27 or greater are significant at the .05 level. Correlations of .34 or greater are significant at the .01 level.

Consistent with past findings, artists were significantly higher than scientists on negative affect, anxiety, and global symptom severity.[1] As predicted, they were also higher in affect intensity, and reported fewer strivings for emotional containment. Artists were higher than scientists in positive affect (but not significantly so) and were no different from the scientists in life satisfaction.[2]

TABLE 2
MEAN DIFFERENCES BETWEEN ARTIST AND SCIENTIST GROUPS

	Scientists (n = 34)	Artists (n = 19)	$t(52)$	$p(t)$
Negative affect	20.56	26.84	3.57	<.001
Positive affect	32.40	34.11	1.29	<.20
Affect intensity	3.41	3.84	3.15	<.01
Life satisfaction	21.23	20.76	−.28	<.80
BSI anxiety	.67	1.16	2.77	<.01
BSI global symptom severity	.71	1.07	2.44	<.02
Number of strivings for "emotional containment"	2.11	1.37	−2.01	<.05
Social desirability	12.53	12.51	−.02	<.99
Repressive coping	.23	−.48	1.61	<.12

Next I examined the influence of gender upon these results. This is necessary because the samples are somewhat unbalanced in terms of gender, and because females are typically found to be higher in negative affect and affective intensity than are males (Fujita *et al.*, 1991). T tests revealed that women were in fact higher than men in negative affect ($M = 24.9$ vs 20.1, $t(52) = 2.65$, $p < .05$), anxiety ($M = 1.06$ vs .61, $t(52) = 2.66$, $p < .05$), and affect intensity ($M = 3.83$ vs 3.25, $t(52) = 4.99$, $p < .001$), but were no different from men on any other measure. In order to control for the contribution of gender to the artist/scientist differences on these three variables, I conducted hierarchical regression analyses in which gender was entered first into the equation and vocation second. For all three analyses, vocation made a significant predictive contribution after gender was entered. Thus, the present differences between artists and scientists do not appear to be an artifact of gender imbalances within the samples.

Finally, the social desirability and repressive coping measures were examined. No significant mean differences emerged between artists and scientists on either of these these two variables (see Table 2). To examine the possibility that social desirability or repressive coping tendencies affect emotion reports differently in artists than in scientists, I also conducted hierarchical regression analyses for each emotional variable in which vocation and either social desirability or repressive coping were entered at the first step and the appropriate product term at the second step. None of these interaction terms were significant. Thus, the emotional differences between vocations do not appear to be related to social desirability or emotion-denying response biases.

DISCUSSION

Artists were markedly higher than scientists in negative affect, anxiety, and global psychosymptomology.[3] In one sense these results fit the stereotype of the "neurotic artist" and suggest that artists are more poorly adjusted than scientists. However, the current data also support another interpretation. Despite being higher in negative affect, artists listed *fewer* strivings to contain or control their emotional experience. Furthermore, although negative affectivity and life satisfaction were negatively correlated across the whole sample, artists were no less satisfied with life than scientists and actually tended to experience more positive affect than scientists. Finally, artists were more affectively intense than scientists. Given Diener and Larsen's (1987) proposal that affectively intense people use strong emotions to compensate for chronic underarousal, these findings imply that negative emotions may serve a useful stimulant or arousal regulation function within the lives of artists, rather than being straightforwardly indicative of maladjustment. This speculation requires two caveats, however. First, past a certain point, negative emotionality and symptomology are likely to be maladaptive no matter what the person's need for stimulation. Second, baseline arousal levels, a crucial piece of this interpretation, have not been measured in the current study.

---

[1] In addition to anxiety and global symptom severity, the Brief Symptom Inventory also contains subscales assessing depression, hostility, interpersonal sensitivity, obsessive-compulsiveness, paranoia, phobia, psychoticism, and somatization. These scores are not discussed in the text because of they are not of direct theoretical relevance. For the reader's information, artists were higher than scientists on all of these scales, but significantly so only for the phobia and somatization subscales. Interestingly, somatic symptomology has been associated with affect intensity in the past, supposedly reflecting the physical stress caused by repeated intense emotional experiences (Diener & Larsen, 1987). The fact that artists were higher in both affect intensity and somatization supports this association.

[2] Within the scientist group, physicists and ecologists' means did not differ from one another, with two exceptions: t tests revealed that ecologists reported significantly more negative affect ($M = 22.7$ vs $M = 17.6$) and significantly more anxiety ($M = .88$ vs $M = .42$) than did physicists.

[3] A limitation of this study is that it used relatively small samples, solicited by somewhat different means. Attempting to assess the generalizability of the findings, I examined a sample of 118 University of Rochester undergraduates who had completed an Art Background Questionnaire (ABQ; Wild, 1993), the Hopkins Symptom Checklist (DeRogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), the Affect Intensity Measure, the Satisfaction with Life Scale, and who listed 10 Personal Strivings (which were coded for themes of emotional containment). The ABQ asks subjects how often they seek out experiences of

A simpler explanation of the negative emotionality differences is that artists and scientists face different norms and socialization practices regarding emotional expression within their vocational communities and thus become differentially biased in their self-reporting of emotion. That is, artists may be encouraged to exaggerate their negative emotions and scientists encouraged to downplay them. However, the fact that artists and scientists did not differ in socially desirable responding or repressive coping tendencies helps to rule out the possibility that the emotionality differences uncovered are merely response artifacts.

Assuming that the artists and scientists in this study differed in emotionality *before* exposure to their vocational milieu (rather than differing *as a result* of such exposure), the current findings suggest that vocational choices may be made, in part, to serve temperamental needs. That is, artists may choose an artistic career because of the opportunities for emotionally intense experiences which are afforded by artistic activity, whereas scientists may choose a scientific career because it provides them a context for controlling their emotional intensity and arousal.[4]

---

visual art, music, and literature, how important art is in their lives, and how much their mood is affected by art. A composite "art interest" score was created by summing across these items. Consistent with the above vocational findings, undergraduates interested in art were also higher in anxiety ($r = .24$, $p < .01$), total symptomology ($r = .20$, $p < .04$), and affect intensity ($r = .22$, $p < .02$); listed fewer strivings to contain emotional experience ($r = -.32$, $p < .001$); and were no different in life satisfaction ($r = -.06$, ns).

[4] Of course, there are other plausible interpretations of the artist/scientist emotionality differences besides differences in psychological adjustment, response biases, or temperament. For example, artists may come to experience more negative emotions than scientists because

Why should artistic endeavors afford more opportunities for emotionally intense experience than scientific ones? One reason is suggested by Larsen, Diener and Cropanzano's (1987) study which identified three cognitive operations by which emotional stimulation-seekers create intense experiences for themselves: they may selectively focus on the emotional aspects of situations, may personalize situations and may overgeneralize from particular events. Because art almost by definition is the attempt to express emotional themes and personal values (Eiduson, 1958; Hatterer, 1965; Storr, 1983), artistic activities may well lead one to employ the above emotion-enhancing cognitive operations. Accordingly, the artistic vocation may appeal to those who seek a venue in which to experience strong emotions.

In contrast, scientists often attempt to set aside their own values and wishes in order to find the "objective truth" regarding questions of interest (Storr, 1983). This rational ideal may influence scientists to downplay the emotional aspects of situations, to avoid personalizing events, and to avoid premature overgeneralization. Resultingly, the scientific vocation may appeal to those who wish to develop means of dampening intense emotions.

Future studies of artists and scientists could directly test the hypothesis that they differentially employ the emotion-amplifying strategies of personalization, overgeneralization, and selective emotional focus. Future research might also test the hypothesis that artists and scientists tend to differ in baseline arousal, and explore the speculation that vocational choices are influenced by temperamental factors. The current study only scratches the surface of these issues.

REFERENCES

Andrews, F. M., & Withey, S. B. (1976). *Social indicators of well-being: America's perception of life quality.* New York: Plenum Press.

Barron, F. (1963). *Creativity and psychological health.* New York: Van Nostrand.

Barron, F. (1969). *Creative person and creative process.* New York: Holt, Rinehart & Winston.

Cattell, R. (1963). The personality and motivation of the researcher from measurement of contemporaries and from biography. In C. W. Taylor & F. Barron (Eds.), *Scientific creativity.* New York: Wiley.

Cattell, R., & Drevdahl, J. (1955). A comparison of the personality profile (16PF) of eminent researchers with that of eminent teachers and administrators and the general population. *British Journal of Educational Psychology,* **46,** 248–261.

Cross, P., Cattell, R., & Butcher, H. (1967). The personality pattern of creative artists. *British Journal of Educational Psychology,* **37,** 292–299.

---

they suffer from more career uncertainty and economic instability, or because of their authentic probing into painful issues. Only prospective studies can determine the direction of the causal arrow (if any) between vocational choice and emotionality.

Crowne, D. P., & Marlowe, D. (1964). *The approval motive: Studies in evaluative dependence.* New York: Wiley.

DeRogatis, L., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychological Medicine,* **13,** 595–605.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin,* **95,** 542–575.

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology,* **47,** 1105–1117.

Diener, E., Emmons, R., Larsen, R., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment,* **47,** 1105–1117.

Diener, E., & Larsen, R. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality,* **21,** 1–39.

Drevdahl, J. (1956). Factors of importance for creativity. *Journal of Clinical Psychology,* **12,** 21–26.

Drevdahl, J., & Cattell, R. (1958). Personality and creativity in artists and writers. *Journal of Clinical Psychology,* **14,** 107–111.

Eiduson, B. T. (1958). Artist and non-artist: A comparative study. *Journal of Personality,* **26,** 13–28.

Eiduson, B. T. (1962). *Scientists: Their psychological world.* New York: Basic Books.

Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology,* **51,** 1058–1068.

Emmons, R. A. (1989). The personal strivings approach to personality. In L. A. Pervin (Ed.) *Goal concepts in personality and social psychology.* Hillsdale, NJ: Erlbaum.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Behavioral Science,* **19,** 1–15.

Feist, G. (1991). Synthetic and analytic thought: Similarities and differences among art and science students. *Creativity Research Journal,* **4,** 145–155.

Fujita, F., Diener, E., & Sandvik, E. (1991). Gender differences in negative affect and well-being: The case for emotional intensity. *Journal of Personality and Social Psychology,* **61,** 427–434.

Hatterer, L. (1965). *The artist in society.* New York: Grove.

Larsen, R. (1984). Theory and measurement of affect intensity as an individual difference characteristic. *Dissertation Abstracts International,* **5,** 2297B (University Microfilms No. 84-22112).

Larsen, R. & Diener, E. (1985). A multitrait-multimethod examination of affect structure: Hedonic level and emotional intensity. *Personality and Individual Differences,* **6,** 631–636.

Larsen, R., Diener, E., & Cropanzano, R. (1987). Cognitive operations associated with individual differences in affect intensity. *Journal of Personality and Social Psychology,* **53,** 767–774.

Larsen, R., Diener, E., & Emmons, R. (1986). Affect intensity and reactions to daily life events. *Journal of Personality and Social Psychology,* **51,** 803–814.

Pavot, W., Diener, E., Colvin, R., & Sandvik, E. (1991). Further validation of the Satisfaction With Life Scale: Evidence for the cross-method convergence of well-being measures. *Journal of Personality Assessment,* **57,** 149–161.

Taft, R. (1958). Peak experiences and ego permissiveness. In G. Lindzey (Ed.), *Assessment of human motives.* New York: Reinhart.

Storr, A. (1983). Individuation and the creative process. *Journal of Analytic Psychology,* **28,** 329–343.

Watson, D. (1988). Intraindividual and interindividual analyses of positive and negative affect: Their relation to health complaints, perceived stress, and daily activities. *Journal of Personality and Social Psychology,* **44,** 644–651.

Watson, D., & Clark, L. A. (1984). Negative affectivity: the disposition to experience aversive emotional states. *Psychological Bulletin,* **96,** 465–490.

Watson, D., Tellegen, A., & Clark, L. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology,* **54,** 1063–1070.

Watson, D., & Pennebaker, J. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review,* **96,** 234–254.

Weinberger, D. A. (1990). The construct validity of the repressive coping style. In J. L. Singer (Ed.), *Repression and dissociation: Implications for personality theory, psychopathology, and health.* Chicago: University of Chicago Press.

Wild, C. (1993). *Context and meaning ascription in visual art.* Unpublished doctoral dissertation, University of Alberta.